Review of Duke Energy Carolinas, LLC'S Amended Application for Approval of Rider 12 Docket Number 2020-83-E

South Carolina
Office of Regulatory Staff

May 22, 2020

Executive Summary

In Duke Energy Carolinas, LLC's ("Company" or "DEC") Amended Application for Approval of Rider 12 ("Application" or "Rider 12"), the Company is seeking recovery of $77,043,996 with $45,335,574 (or 59%) attributed to residential customers and $31,708,422 (or 41%) attributed to non-residential customers to cover the revenue requirements of Rider 12. This report details the Office of Regulatory Staff's ("ORS") findings and recommendations based on its review of the Company's Application, programs, and cost recovery mechanism. Based on its review, ORS recommends the following:

- A reduction of $15,568 to the Company's total system program costs to account for the removal of certain expenses that were either not allowable for ratemaking purposes or lacked appropriate documentation for cost recovery. Since the impact on the proposed rates from this adjustment is negligible, correcting journal entries will be made by the Company prior to its next Demand Side Management ("DSM") and Energy Efficiency ("EE") cost recovery filing.

- ORS is concerned that the non-residential EnergyWise for Business ("EWfB") and non-residential Information Technology Energy Efficient ("ITEE") Programs have not passed cost effectiveness testing and recommends that the company incorporate the necessary changes to improve their cost effectiveness.

Aside from the EWfB and ITEE programs, ORS finds that the programs continue to perform well. Realized cumulative energy savings have exceeded the anticipated energy savings by forty-six percent (46%), and although the number of non-residential opt-outs has increased slightly, the Company continues to work directly with large non-residential customers in an effort to entice those customers to participate. ORS also finds that the updated DSM/EE Rate Riders were developed in accordance with the terms and conditions set forth by the Public Service Commission of South Carolina ("Commission") and are based on reasonable estimates of participation in the Company's DSM/EE programs.

The current Rider 11 rates approved for 2020 and the Rider 12 rates proposed for 2021 are shown in Table 1 below.

Table 1: Comparison of Current and Requested Rates

DSM/EE Rider	Approved Rider 11 Rate (¢/kWh)	Requested Rider 12 Rate (¢/kWh)	Change to Rider 11 Rate (¢/kWh)
Residential	0.5783	0.6878	0.1095
Non-Residential	0.9044	0.6788	-0.2256

Introduction

The original DEC DSM and EE programs (Vintages One through Four) were filed under DEC's Save-A-Watt ("SAW") cost recovery methodology. In Docket No. 2013-298-E, Order No. 2013-889, the Commission approved the Revised Settlement Agreement ("Settlement") which stipulated, among other negotiated items, the approval of DEC's application for a new cost recovery mechanism and a revised portfolio of DSM/EE programs. The revised cost recovery model allows the Company to recover (1) all reasonable and prudent costs incurred for the adoption and implementation of new DSM/EE programs; (2) net lost revenues associated with a particular vintage of EE programs for a maximum of three years or the life of the measure; and (3) an earned incentive equal to 11.5% of the net benefits achieved through the programs.

On March 2, 2020, the Company filed an application for approval of Rider 12 in Docket No. 2020-83-E. On May 11, 2020, the Company filed amendments to the original filing to correct three errors discovered by the Company. The correction of these errors resulted in a slight reduction to the original filed rates. Rider 12 consists of prospective amounts for Vintages 2020 and 2021, along with true-up components and recovery of lost revenues under previous vintages, namely Vintages 2016, 2017, 2018 and 2019. This report addresses DEC's Rider 12 as amended by DEC in their May 11, 2020 filing. The amended Rider 12 billing factors, which are based solely on the revised cost recovery method, will apply to the billing period January 1, 2021 through December 31, 2021.

The Company's cost recovery mechanism identifies vintages by calendar year. The Vintage 2021 period is the calendar year 2021 and costs for measures projected to be installed in that year are to be recovered under Rider 12. Table 2 below summarizes the program years for each of the vintages.

Table 2: Vintage Program Years

Program Year/Rider	Beginning Date	Ending Date	Vintage Number
1	February 1, 2010	December 31, 2010	SAW -Vintage 1
2	January 1, 2011	December 31, 2011	SAW -Vintage 2
3	January 1, 2012	December 31, 2012	SAW -Vintage 3
4	January 1, 2013	December 31, 2013	SAW -Vintage 4
5	January 1, 2014	December 31, 2014	Vintage 2014
6	January 1, 2015	December 31, 2015	Vintage 2015
7	January 1, 2016	December 31, 2016	Vintage 2016
8	January 1, 2017	December 31, 2017	Vintage 2017
9	January 1, 2018	December 31, 2018	Vintage 2018
10	January 1, 2019	December 31, 2019	Vintage 2019
11	January 1, 2020	December 31, 2020	Vintage 2020
12	January 1, 2021	December 31, 2021	Vintage 2021

DSM/EE Programs

The Company's filing includes requests for cost recovery encompassing twenty-one (21) DSM/EE programs. The Company's actual costs were audited for the period January 1, 2019 through December 31, 2019 ("Vintage Year 2019"). ORS also reviewed the Company's cost projections for the period January 1, 2021 through December 31, 2021 ("Forecast Vintage Year 2021").

Table 3 below shows the actual DSM/EE Program Energy Savings, Incentive Program Costs and Non- Incentive Program Costs for Vintage years 2014 through 2020.

Table 3: DSM/EE Energy Savings, Incentive Program Costs, and Non-Incentive Program Costs

Vintage Program Years	Net MWh Savings	Incentive Program Costs	Non-Incentive Program Costs
2014	540,323	$50,578,537	$38,884,186
2015	652,973	$69,012,103	$40,937,094
2016	796,218	$106,486,823	$44,891,711
2017	934,323	$141,808,439	$50,251,514
2018	887,162	$111,472,966	$47,096,379
2019	844,287	$103,669,566	$46,750,822
2020[1]	695,374	$78,887,054	$57,187,378

[1]Pre-Evaluation, Measurement & Verification actual.

Chart 1 below illustrates the fluctuation of the DSM/EE Program energy savings and the associated Incentive Program Costs for Vintage years 2014 through 2020.

Chart 1: DSM/EE Energy Savings and Incentive Program Costs for Vintage Years 2014 - 2020

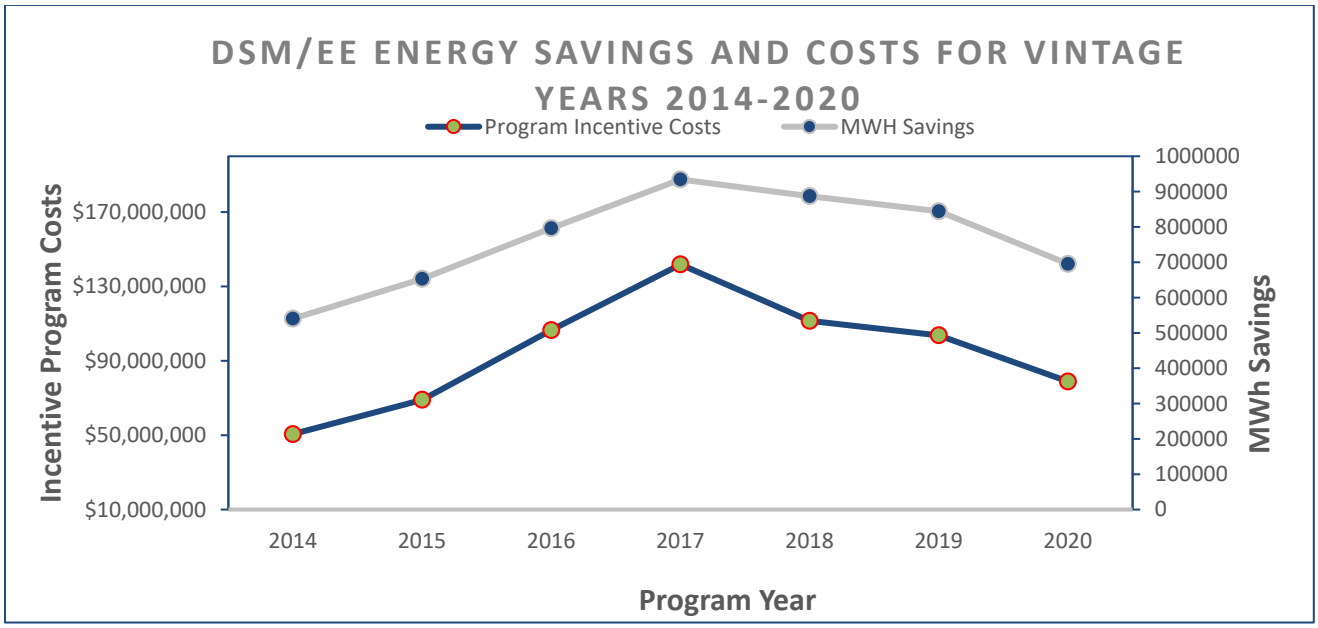
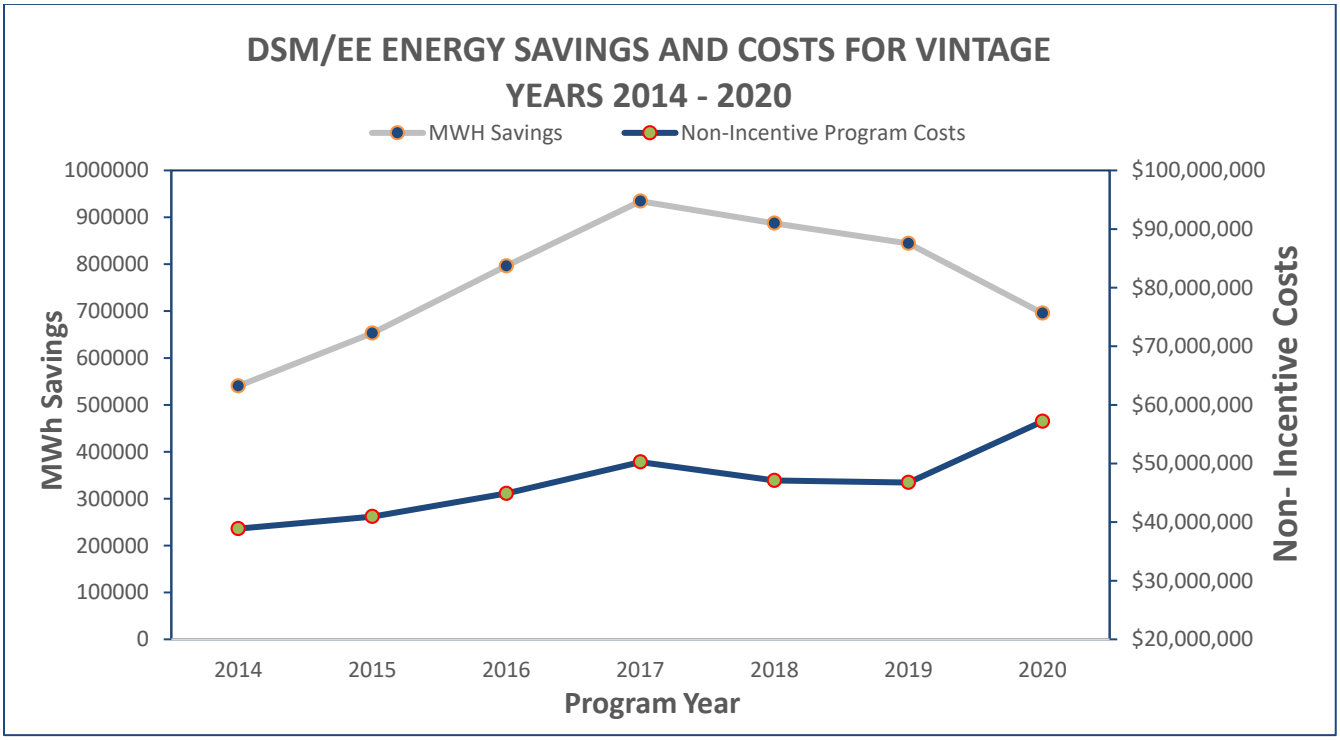


Chart 2 below illustrates the fluctuation of the DSM/EE Program energy savings and the associated Non-Incentive Program Costs for Vintage years 2014 through 2020.

Chart 2: DSM/EE Energy Savings and Non- Incentive Program Costs for Vintage Years 2014 - 2020



For two programs included in Vintage 2021, namely; non-residential EWfB Program and non-residential ITEE Program,[2] costs are projected to exceed benefits, according to the Company's Utility Cost Test ("UCT") results (i.e., the UCT scores are less than 1.0). In fact, costs have exceeded benefits for several years for these two programs.

The EWfB Program failed the UCT for Vintage Years 2019 through 2021. The Company faults the lower levels of participation than projected for the failed UCT scores but believes that the program can reach cost-effectiveness with some modifications to the marketing and implementation of the program. The Company continues to look at options to modify the program, including reducing incentives and adding additional enrollment options to improve the program's UCT score. The Company projects that benefits will only be 80% of program costs in 2021.

The ITEE Program failed the UCT for Vintage Years 2017 through 2021. The Company faults the high cost of implementation and equipment combined with low rates of

2 The ITEE Program is not a standalone program, but a subset of the Smart Saver Prescriptive Program. ITEE performance is tracked separately due to the unique nature of the projects it includes.

participation for the failed UCT scores and continues to review the ITEE offering to identify changes in implementation and equipment costs. The Company also continues to seek new measure incentives to include in the ITEE program to improve the program's UCT score. For Vintage Year 2021, the Company projects that program benefits will only be 60% of program costs.

Chart 3 below shows the graphical representation of the UCT for the EWfB and ITEE Programs for vintage years 2017 through 2021.

Chart 3: EWfB & ITEE Programs' UCT for Vintage Years 2017-2021

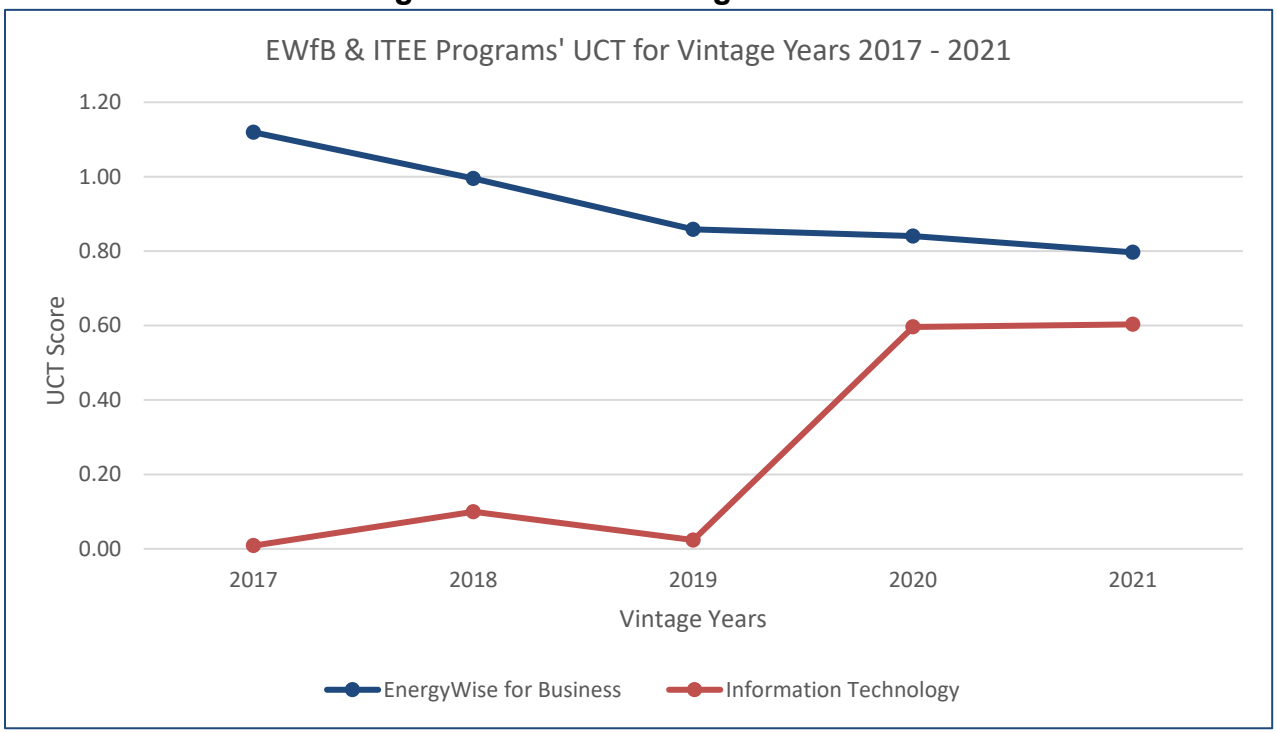


Table 4 below shows program costs expressed in cents per kilowatt-hour ("kWh") saved or dollars per kilowatt ("kW") saved for the Vintage 2021 projected participation of each program.

Table 4: Program Costs

Residential Programs	¢/kWh
Energy Efficiency Education	3.6
Energy Assessments	4.1
My Home Energy Report	2.5
Energy Efficient Appliances and Devices	1.6
HVAC Energy Efficiency	9.1
Income Qualified Energy Efficiency and Weatherization Assistance	13.3
Multi-Family Energy Efficiency	1.5
Power Manager	$31.00/kW
Commercial and Industrial Programs	**¢/kWh**
Smart Saver Custom Technical Assessments	1.4
Smart Saver Custom	1.4
Smart Saver Energy Efficient Food Service Products	2.2
Smart Saver Energy Efficient HVAC Products	3.6
Smart Saver Energy Efficient Lighting Products	1.1
Energy Efficient Pumps and Drives	1.5
Energy Efficient ITEE	4.4
Energy Efficient Process Equipment Products	1.7
Smart Saver Performance Incentive	1.2
Small Business Energy Saver	1.9
EnergyWise for Business	$210.18/kW
Power Share	$39.90/kW
Power Share Call Option	$63.98/kW*

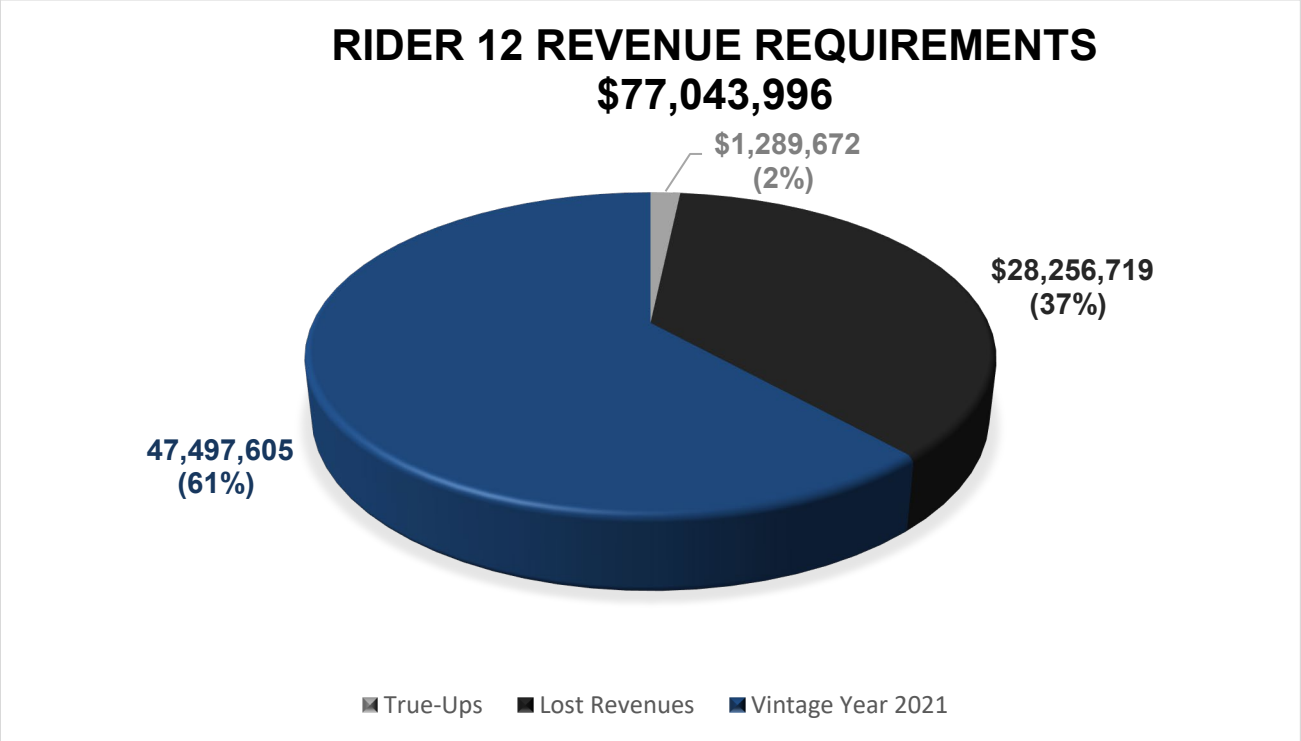
*The cost shown for the Power Share Call Option program is a 2015 value.

Based on information provided by the Company, the overall portfolio of programs appears to be performing well. The Company reports that realized cumulative energy savings of the Company's portfolio through the end of calendar year 2019 exceeded the anticipated energy savings by approximately forty-six percent (46%), and cumulative peak demand savings through 2019 from DSM programs exceeded forecasted savings by approximately four percent (4%). The realized energy savings have been driven by higher than projected energy savings in the residential Energy Efficient Appliances and Devices Program and the non-residential Energy Efficient Lighting Products Program.

Program Cost Evaluation

In DEC's Application, the Company is seeking recovery of $45,335,574 (or 59%) from residential customers and $31,708,422 (or 41%) from non-residential customers to cover the revenue requirements of Rider 12 for a grand total of $77,043,996. A breakdown of the components of the total revenue requirement is shown below in Chart 4.

Chart 4: Rider 12 Revenue Requirements

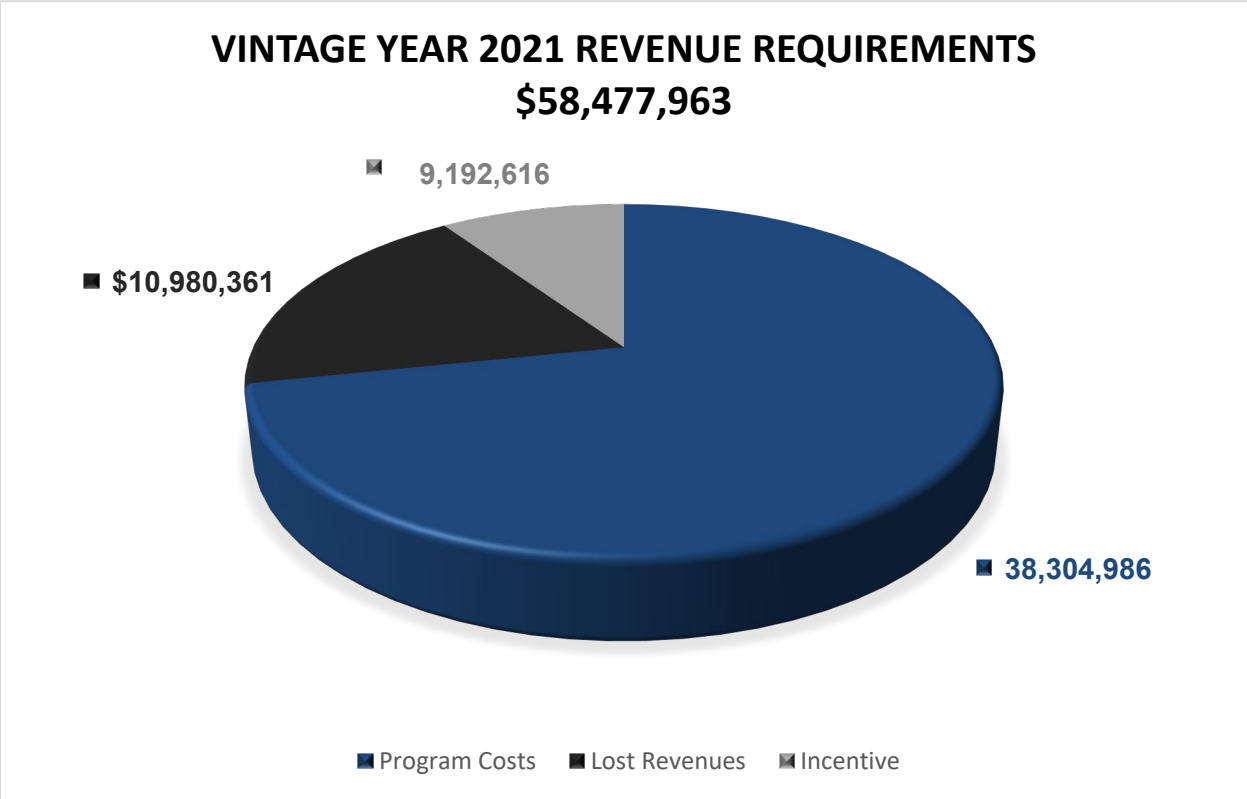


A line-by-line breakout of the major cost components of the Rider 12 filing and the development of the billing factors is shown in Exhibit 1. The requested revenues from residential customers are recovered from all residential ratepayers, while the non-

residential revenues are recovered from the non-residential ratepayers on an eligible rate schedule that do not opt-out of the DSM/EE Rider.

The cost components of Vintage Year 2021, the largest portion of Rider 12, are illustrated below in Chart 5.

Chart 5: Vintage Year 2021 Revenue Requirements



For the Company's Vintage 2021 EE programs, the average lifetime cost of each kWh saved is estimated by the Company to be 1.8 cents. The average lifetime cost of the demand savings for the Company's Vintage 2021 DSM programs is estimated to be $38.91 per kW. These results compare favorably with the costs of supply-side generation.

Advisory Group

The DEC Collaborative Group ("Carolinas Collaborative"), the Company's advisory group concerning DSM/EE matters, meets every other month to discuss the status of each program, including preliminary participation statistics, EM&V plans and preliminary EM&V data. The Carolinas Collaborative consists of members from both North Carolina and South Carolina representing all customer classes and a variety of governmental, environmental and commercial interests. The Advisory Group met on January 31, 2019, March 3, 2019, May 3, 2019, July 17, 2019, September 4, 2019, and November 6, 2019. During the meetings, the Company shared program updates along with program

challenges, and target audience strategies that are employed to make the DSM/EE programs a success and provided an opportunity for members to participate in discussions on how these modifications may impact participation among the various sectors.

In addition, the Company shared preliminary information on the upcoming Market Potential Study that will examine savings opportunities from theoretical maximum to realistic program potential; evaluating market saturation of various energy efficiency measures, reliable industry data, and customer interval and end use data. The results of the study will inform energy efficiency saving potential and Demand Response forecast.

Evaluation, Measurement & Verification

Information from the following EM&V reports was utilized for the Rider 12 filing:

- 2017 Neighborhood Energy Saver Program Evaluation Report – Final
- My Home Energy Report Program Evaluation
- Duke Energy PowerShare Program 2018 Evaluation Report
- Energy Efficiency Education in Schools Program Year 2017-2018 Evaluation Report
- Smart Saver Evaluation Report May 1, 2016 – April 30, 2017

Estimates Used in the Filing

All prospective portions of Rider 12 (pertaining to amounts associated with years 2020 and 2021) are estimates. These estimated values were derived from the DSMore™ computer model. ORS tested and reviewed the DSMore™ model and finds it suitable for this purpose.

Forecasted Retail Sales

The Company utilized its fall 2019 forecast of retail sales, adjusted for non-residential opt-outs, to develop the Rider 12 rates. ORS finds this to be a reasonable approach to establish rates.

Existing DSM Programs

Prior to the implementation of the SAW programs, the Company used the North Carolina and South Carolina Interruptible Service (“IS”) and Standby Generation (“SG”) programs – Rider IS and Rider SG (“Existing DSM Programs”) – for demand-side management. Although DEC is working to move the Existing DSM Programs’ customers to the new programs, some customers continue to take service under the Existing DSM Programs. The rate recovery for the Existing DSM Programs, which is based on the recovery of incentives paid, is computed separately from the SAW programs and the revised portfolio

of programs. In the Rider 12 filing, the rate recovery for the Existing DSM Programs is included in the prospective portion of Rider 12.

ORS verified that all program costs, avoided costs and lost revenues associated with the Company's IS and SG programs have been excluded from the Company's incentive program, that the program costs associated with the Company's Existing DSM Programs are being recovered as a separate component of Rider EE, and that the recovery of the cost of these programs is consistent with the Company's approved tariff. The total cost of the Existing DSM Programs included in Rider 12 is $1,276,485.

Avoided Costs

ORS verified that the avoided energy and capacity costs calculations for Vintages 2014 through 2018 are based on the avoided energy cost rates and avoided capacity cost rates that were approved in Docket No. 2013-298-E. The avoided transmission and distribution ("T&D") costs are based on avoided T&D cost rates developed in a study completed during 2014. However, for Vintages 2019, 2020 and 2021, the Company found that the avoided energy and capacity cost rates had changed by more than 25% and updated those rates accordingly. Due to this significant downward adjustment in the avoided energy and capacity cost rates, the Company has made and is considering additional modifications to the EE and DSM programs to ensure that the programs remain cost effective.

Energy and Peak Demand Savings

The Company projects that the measures installed in Vintage 2021 will reduce electric usage over the lifetimes of the installed measures by more than 5,824,874 megawatt hours and will provide the capability to reduce the annual one-hour peak usage by 1,031 megawatts. These are considerable savings and may provide DEC the ability to avoid or defer the construction of additional generating facilities.

Opt-Outs

Under the original SAW programs, industrial customers classified as manufacturing industries that utilized at least 50% of electrical usage for manufacturing could opt-out of the Company's programs. Each eligible customer could opt-out of the EE programs, the DSM programs, or both sets of programs. Under the revised cost recovery mechanism and portfolio of programs (Vintage 2014 and forward), the ability to opt-out was expanded to include non-residential customers that are classified as manufacturing industries or that have an annual consumption of 1,000,000 kWh or greater in the billing months of the prior calendar year and have implemented cost-effective energy efficiency measures. The number of non-residential customers electing to opt-out of the EE programs has increased from 67% in Vintage Year 2014 (based on energy utilization) to 70% in Vintage

Year 2019. For the DSM programs, the customers opting out has increased from 60% in Vintage Year 2014 to 63% in Vintage Year 2019.

ORS continues to monitor the increasing numbers of non-residential customers that elect to opt-out of the Company's programs. The Company has responded by creating an additional opt-in window during the first week of March in each year, and also by adding additional programs targeted toward these customers, such as the EnergyWise for Business program.

Rate Evaluation

The Rider 11 rates approved for 2020 and the Rider 12 rates requested for 2021 are shown below in Table 4.

Table 4: Comparison of Current and Requested Rates

DSM/EE Rider	Approved Rider 11 Rate (¢/kWh)	Requested Rider 12 Rate (¢/kWh)	Change to Rider 11 Rate (¢/kWh)
Residential	0.5783	0.6878	0.1095
Non-Residential	0.9044	0.6788	-0.2256

The requested change in the DSM/EE Rate Rider for an average residential customer using 1,000 kWh per month will increase the customer's monthly bill by approximately $1.10. The Rider 12 residential rate is approximately 19% higher than the Rider 11 rate. The main drivers for this increase in the residential rate are increased lost revenues due to recent rate increases, and increased program costs due to increased participation in the residential programs.

The requested Residential Rider would apply to all residential customers. However, due to the non-residential opt-out provision, the requested Non-Residential Riders apply only to those non-residential customers that have elected to participate in the Vintage Year 2020 programs.

Because eligible non-residential customers have the ability to opt-out of either the DSM or EE programs, and can do so by vintage, the Company has developed separate non-residential rates for DSM and EE participants of each vintage. The non-residential rate shown in Table 4 is the total rate that would be paid by non-residential customers that do not opt-out of any vintage for either the EE or the DSM programs.

Conclusion and Recommendation

ORS recommends the following regarding the Company's request in this filing:

- A reduction of $15,568 to the Company's total system program costs to account for the removal of certain expenses that were either not allowable for ratemaking purposes or lacked appropriate documentation for cost recovery. Since the impact on the proposed rates from this adjustment is negligible, correcting journal entries will be made by the Company prior to its next DSM/EE cost recovery filing.

- ORS is concerned that the non-residential EWfB and non-residential ITEE Programs have not passed cost effectiveness testing and recommends that the company incorporate the necessary changes to improve their cost effectiveness.

ORS is encouraged by the overall cumulative energy savings the programs continue to achieve and finds that the updated DSM/EE Rate Riders were developed in accordance with the terms and conditions set forth by the Commission and are based on reasonable estimates of participation in the Company's DSM/EE programs. ORS recommends the approval of the Company's requested Rider 12 rates as proposed in their Application.

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Revenues and Billing Factors
Rider 12 - As Amended

Residential Rider	**Revenue Requirement**
True-Ups:	
Costs to be Recovered for Vintage Year 2016 True-Up	($591,079)
Costs to be Recovered for Vintage Year 2017 True-Up	($1,923,312)
Costs to be Recovered for Vintage Year 2018 True-Up	$2,773,805
Costs to be Recovered for Vintage Year 2019 True-Up	$7,511,193
Total True-Ups	$7,770,607
Lost Revenues:	
Vintage Year 2018, year four Lost Revenues (one-half year)	$2,188,505
Vintage Year 2019, year three Lost Revenues	$4,134,540
Vintage Year 2020, year two Lost Revenues	$1,975,653
Vintage Year 2021, year one Lost Revenues	$8,997,541
Total Lost Revenues	$17,296,239
Prospective Amounts:	
Costs to be Recovered for Vintage Year 2021	$20,928,346
Existing DSM Program Revenue Requirement	$526,075
Less: Costs to be recovered through solar access fee	($1,185,693)
Total Prospective Amounts	$20,268,728
Total Revenue Requirement - Residential	$45,335,574
Projected SC Residential Sales for the rate period (kWh)	6,591,986,001
Total Revenue Requirement for Residential (¢/kWh)	**0.6878**

Non-Residential Riders	**Revenue Requirement**	**Sales to Participants (kWh)**	**Rate Rider**
True-Ups:			
Costs to be Recovered for Vintage Year 2016 True-Up - EE Participants	($750,849)	4,627,612,637	**(0.0162)**
Costs to be Recovered for Vintage Year 2016 True-Up - DSM Participants	$2,475	5,448,234,396	**0.0000**
Costs to be Recovered for Vintage Year 2017 True-Up - EE Participants	($577,285)	4,564,691,454	**(0.0126)**
Costs to be Recovered for Vintage Year 2017 True-Up - DSM Participants	$47,245	5,448,234,396	**0.0009**
Costs to be Recovered for Vintage Year 2018 True-Up - EE Participants	$833,761	4,505,782,182	**0.0185**
Costs to be Recovered for Vintage Year 2018 True-Up - DSM Participants	($82,830)	5,495,148,562	**(0.0015)**
Costs to be Recovered for Vintage Year 2019 True-Up - EE Participants	($6,130,853)	4,448,799,169	**(0.1378)**
Costs to be Recovered for Vintage Year 2019 True-Up - DSM Participants	$177,401	5,492,477,062	**0.0032**
Total True-Ups	($6,480,935)		
Lost Revenues:			
Vintage Year 2018, year four Lost Revenues - EE Participants (one-half year)	$2,036,447	4,505,782,182	**0.0452**
Vintage Year 2019, year three Lost Revenues - EE Participants	$3,626,400	4,448,799,169	**0.0815**
Vintage Year 2020, year two Lost Revenues - EE Participants	$3,314,813	4,404,495,996	**0.0753**
Vintage Year 2021, year one Lost Revenues - EE Participants	$1,982,820	4,404,495,996	**0.0450**
Total Lost Revenue	$10,960,481		
Prospective Amounts:			
Costs to be Recovered for Vintage Year 2021 - EE Participants	$18,123,467	4,404,495,996	**0.4115**
Costs to be Recovered for Vintage Year 2021 - DSM Participants	$8,354,998	5,492,477,062	**0.1658**
Existing DSM Program Revenue Requirement	$750,410		
Total Prospective Amounts	$27,228,875		
Total Revenue Requirement - Non-Residential	$31,708,422		**0.6788**
Grand Total Revenue Requirement	$77,043,996		